

ABSTRACT

A continuous method and a heat pump device for enrichment of low-concentrated reaction mixtures resulting from the production of cycloalkanediene by means of catalytic metathesis of cyclic aliphatic alkenes and cyclooligomers in organic reaction media with reduced energy consumption. Using the heat pump principle, liquid reaction mixtures with a content of at least 0.1 w/w % are enriched in an organic reaction medium to 30 to 50 w/w %. The organic reaction medium at temperature T1 is evaporated in an evaporator, the vapor is withdrawn and compressed to temperature T2 in a compressor, at a pressure difference of 0.25 to 1 bar. Compressed vapor of the reaction medium transfers heat energy obtained from electric energy in the heat exchanger of the evaporator to the organic reaction medium at temperature T1, and the temperature difference ( $T_2 - T_1$ ) does not exceed 12 K.